to be about the same as for that excited from air. Half of it was absorbed in two layers of aluminium foil 0.00038 centimeters thick.

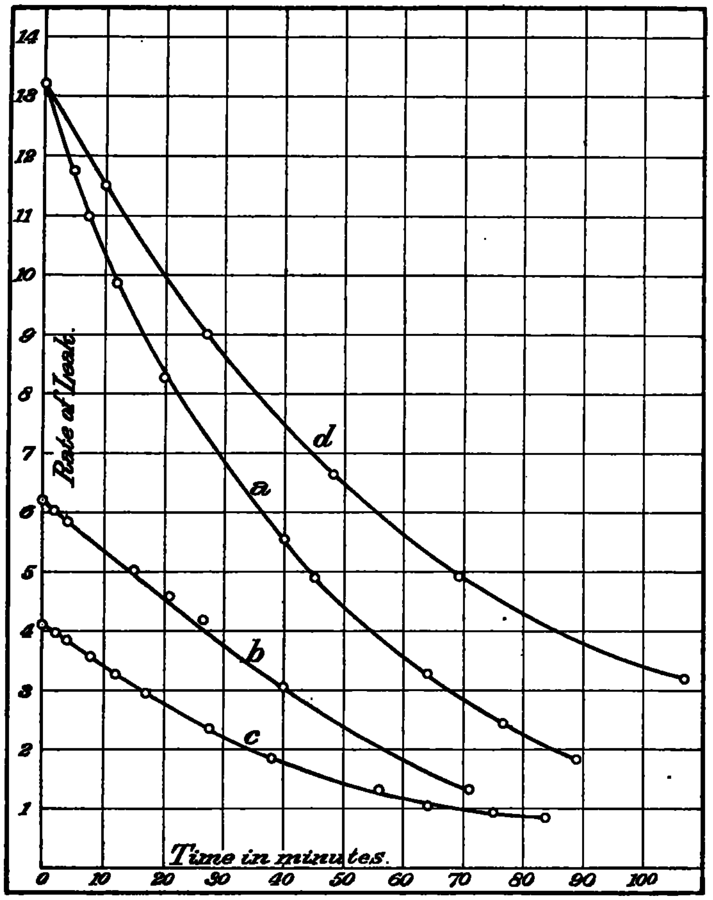

FIG. 1.

This radioactivity could be transferred by rubbing from the surface of the tin vessel on to leather or cotton, etc., moistened in ammonia. When the cotton thus treated was burnt to ashes the residue was still radioactive. Heating to a bright red heat destroyed only a very little of the radioactivity.

It was found that during a snowstorm the amount of radioactivity present kept quite constant so long as the fall of snow remained the same; twenty-four hours after the fall had ceased only a trace of radioactivity could be obtained. The amount of radioactivity obtained on the best day from a liter of snow was about equal in effect to one-fifth of a gram of uranium. It might be of interest to calculate the amount that could be obtained on such a day from one square mile of snow covered territory one centimeter thick. Taking 20 divisions per second as the amount obtained from a liter, we would get about 5×10^8 divisions per second. One scale division with this apparatus corresponds roughly to an ionization current of 3×10^{-13} amperes per second. Therefore a square mile ought to give something of the order of 1.5×10^{-4} amperes per second. This is an amount which could easily be measured by a galvanometer. Over the whole territory of Canada when it is snowing a considerable amount of energy is being radiated. From these results two conclusions may be drawn, either that this radioactivity is different from that excited from air, or that the excited air is a much more complicated substance than was at first supposed. There may be several processes going on, and this may be one of them. Each process may have different rates of formation and decay, and each radioactivity be the superposition of one or more of the processes. Recent experiments by the author rather support this latter view. These points are under investigation and will form the subject of a future paper. It seems beyond doubt that there is a radioactive substance in the atmosphere; how produced, at present, is not known. The falling snow acts as a sort of filter for it and tends to remove portions of it from the atmosphere.

This subject seems to me to be of great importance and interest, and future investigations along this line may greatly extend our knowledge of the physics of the atmosphere.

NOTES AND EXTRACTS.

METEOROLOGY AT THE AMERICAN ASSOCIATION.

At the meeting of the American Association for the Advancement of Science and its affiliated societies held at Washington, January 3–10, 1903, a number of papers were read which, judging from their titles, should have some bearing upon meteorological problems. We make the following selection of authors and titles and hope that in some cases we may be able to print the papers themselves:

S. P. Langley. The solar constant and related problems.

E. O. Lovett. Special periodic solution of n bodies. On the integrals of the problem of n bodies.

A. S. Mitchell. The new gases neon, krypton, and zenon in the chromosphere.

S. R. Cook. (Case School.) On the distribution of pressure around spheres moving with constant velocity in a viscous fluid.

H. W. Springsteen. (Case School.) On the thermal conductivity of glass.

A. L. Rotch. Atmospheric circulation near the equator.

Edwin H. Hall. (Harvard University.) Is there a southerly deviation of falling bodies?

J. R. Benton. (Washington, D. C.) Elasticity of copper and steel at —186° C.

J. R. Benton. (Washington, D. C.) Experiments in connection with friction between solids and liquids.

J. S. Shearer. (Cornell University.) The heat of vaporization of oxygen and nitrogen.

E. Rutherford and H. L. Cook. (McGill University.) A penetrating radiation from the earth's surface.

S. J. Allen. (McGill University.) Radio-activity of freshly fallen snow.

Carl Barus. (Brown University.) The excessive nucleation of the atmosphere.

Carl Barus. (Brown University.) Certain data bearing on the occurrence of lightning.

Carl Barus. (Brown University.) The electrical charges of water nucleii.

A. F. Zahm. Theory, construction, and use of a pressure tube anemometer.

H. Parker Willis. (Washington, D. C.) Requisites in crop reporting.

Prof. Willis L. Moore. Economic work of the Department of Agriculture, especially of the Weather Bureau.

Edwin G. Dexter. The psychology of weather influence.

A. H. Pierce. The apparent form of the heavens and the illusory enlargement of heavenly bodies at the horizon.

T. C. Chamberlin, William H. Welch, and others. How can endowments be used most effectually for scientific research?

Stanley Coulter. (Purdue University.) The changes of fifty years in a local flora.

C. Abbe. Observations on the cause of the rollers and double rollers at the island of Ascension.

E. F. Nichols and G. F. Hull. The pressure due to radiation.

R. W. Wood. Screens transparent only to ultraviolet light.

L. R. Jones and A. W. Edson. Pressure and flow of sap in the sugar maple.

H. C. Cowles. The relative importance of edaphic and climatic factors in determining the vegetation of mountains with especial reference to Mount Katahdin.

D. T. MacDougall. Plant growth as effected by light and darkness.

Peter Fireman. (Washington, D. C.) Motion of translation of a gas in a vacuum.

THE BECQUEREL RAYS IN METEOROLOGY.

In Harper's Monthly Magazine for January, 1903, Prof. J. J. Thomson has a short and suggestive article on the Becquerel rays, in continuation of his preceding article on Cathode rays